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**Appendix A: Electronic Supplementary Material**

Part 1: Maps of study community waterfront census tracts

Part 2: Data sources for this study

Part 3: OpenStreetMap-derived metrics and supporting information

Part 4: Metric screening results for 500 Cities health metrics

Part 5: Census-tract metric means by community and covariate class

Part 6: Results tables for rank correlations referenced in the text

Part 7: Plots of significant rank correlations (if *r*s>0.50)

Part 8: Regression results

Part 1. Maps of study community waterfront census tracts.

Diagram

Description automatically generated

Figure 1.1. Duluth-Superior waterfront census tracts (shaded).

Map

Description automatically generated with medium confidence

Figure 1.2. Green Bay waterfront census tracts (shaded).

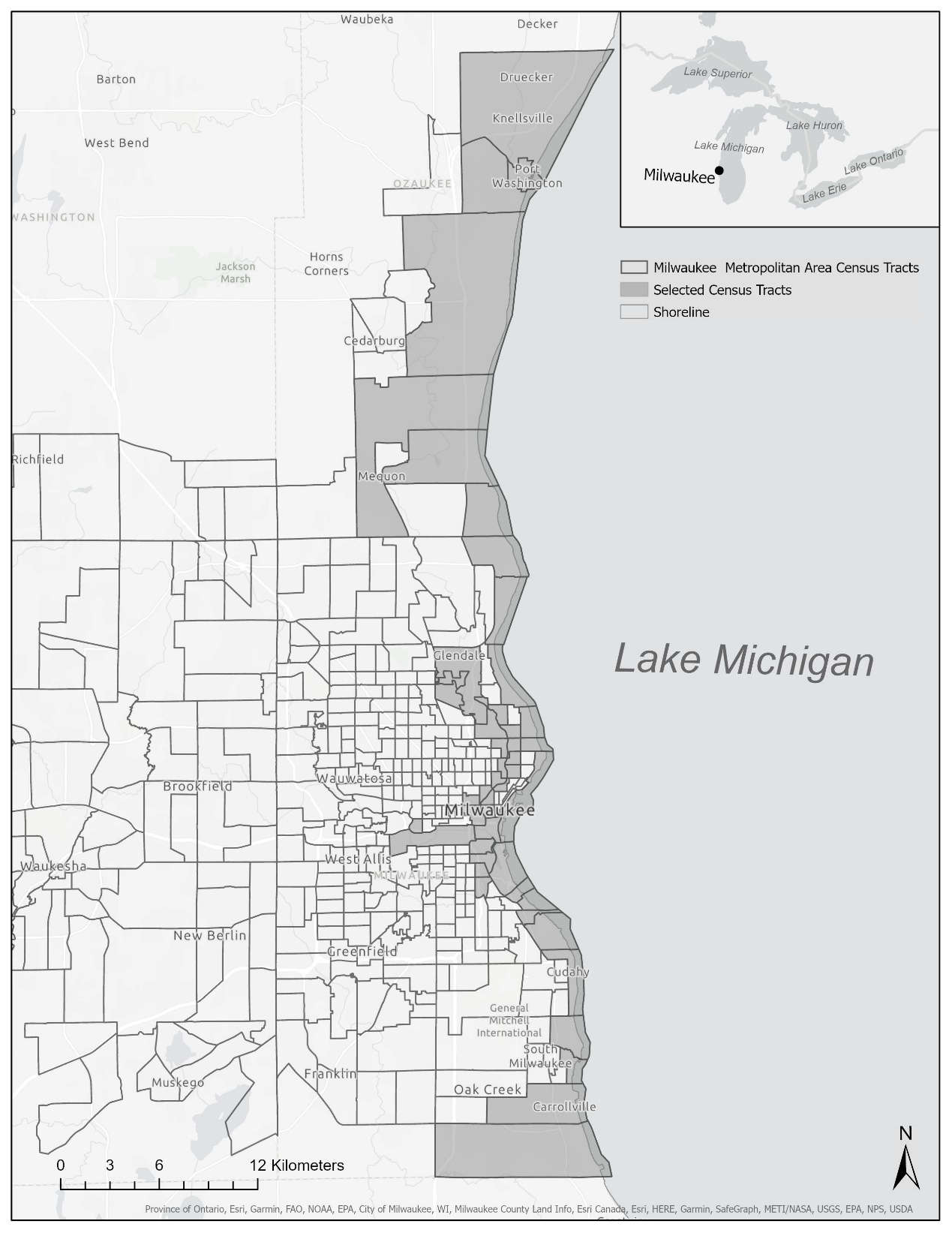


Figure 1.3. Milwaukee waterfront census tracts (shaded).

Map

Description automatically generated

Figure 1.4. Chicago area and northwest Indiana waterfront census tracts (shaded).

Diagram

Description automatically generated

Figure 1.5. Cleveland waterfront census tracts (shaded).

**Part 2. Data sources for this study**

Data from the USEPA’s EnviroAtlas community component (USEPA, 2020) includes metrics for natural capital attributes, many of which are framed as ecosystem services (Table 2.1). Some EnviroAtlas indicators were not available for all communities included in the study. We also compiled all Superfund site in waterfront census tracts from the EnviroAtlas. Data from the USEPA Brownfields Assessment, Cleanup and Redevelopment Exchange System (ACRES), supplied brownfield site locations in waterfront census tracts.

OpenStreetMap (OSM) supports crowdsourced georeferenced data on the occurrence and extent of large variety of natural, seminatural, and built amenities and infrastructure related to sport, leisure, transportation, land use, and waterways (Table 2.1). We created metrics from OSM data for natural capital and amenities in waterfront census tracks. OSM data are subjective at the level of the individual contributer who selects what features to add to the database. The data collection effort underlying the OSM data are therefore not standardized across communities or census tracts.

We obtained data on Great Lakes shorelines, both natural and artificially hardened, from NOAA’s office of Coastal Management Digital Coast Program (Table 2.1). The data consists of type-coded segment of the entire Great Lakes shoreline, but some non-lake river and harbor waterfront shorelines are not included in the coverage.

The Neighborhood Atlas is a database created at the University of Wisconsin which includes a HWB multimetric of socioeconomic disadvantage at the census tract scale called the Area Deprivation Index (ADI; UW, 2021). The ADI is a composite measure of neighborhood disadvantage calculated using 17 poverty, education, housing, income, household, and employment indicators from the USCB’s American Community Survey (ACS; Kind et al. 2014; USCB, 2021).

The social vulnerability index (SVI) is a multimetric index developed by the Centers for Disease Control and Prevention (ATSDR, 2018) using ACS data for evaluating community vulnerability to public health emergencies (Flanigan et al., 2011). The SVI is based on 15 metrics from 4 themes: socioeconomic status (poverty, employment, income, education), household composition/disability (age, disability, parents), minority status/language (minority, English speaking), and housing/transportation (type, occupancy, vehicle).

The Opportunity Atlas (OA, 2021) contains social mobility metrics derived from USCB data by a collaboration of academic and USCB researchers.

The CDC’s 500 Cities program includes HWB metrics related to health outcomes and risky behaviors at the census tract scale (CDC, 2020a). These metrics are derived from the behavioral Risk Factor Surveillance System data and ACS.

The CDC’s US small area life expectancy project (USLEEP; CDC, 2020b) supports HWB metrics on human life expectancy (at birth) at the census tract scale. In addition to providing data incorporated in other indicators, the ACS provides HWB indicators related to housing, income, demographics, education, and employment at the census tract scale, several of which are included among our HWB indicators and covariates.

We obtained census-tract scale neighborhood “Walk Score” data from the vendor (Table 2.1).

Table 2.1. Data sources for this study. Source references in parenthesis in first column refer to “Data source” columns in Table 1a-b in the article.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source  program | Indicator  type | Date  range | Method  references | Download  Link | Notes |
| US EPA  EnviroAtlas  (EA) | Natural capital | 2008-2017 | <https://www.epa.gov/enviroatlas/enviroatlas-fact-sheets> | <https://www.epa.gov/enviroatlas/enviroatlas-dynamic-data-matrix> | Some indicators were not available for Duluth-Superior. Data layers are refreshed as National Land Cover Database is updated. |
| US EPA  ACRES  (ACRES) | 2020 | See download link | https://www.epa.gov/brownfields/brownfields-grantee-reporting-using-assessment-cleanup-and-redevelopment-exchange-system | Contact EPA Regional office for access |
| USEPA  Superfund  (EA) | 2020 | See download link | https://www.opportunityatlas.org/ | Data downloaded from EnviroAtlas |
| OpenStreetMap  (OSM) | 2020 | https://wiki.openstreetmap.org/wiki/Main\_page | https://www.openstreetmap.org/#map=4/38.03/-95.69 | Crowd-sourced data. Data are continuously updated with user contributions. |
| NOAA  Great Lakes  hardened  shorelines  (Shore) | 2019 | See download link | https://coast.noaa.gov/digitalcoast/data/hardened-shorelines.html | Includes all shoreline types. Update schedule unknown. |
| Neighborhood  Atlas -  Area  Deprivation  Index (ADI) | HWB | 2019 | Kind et al (2014, 2018) | https://www.neighborhoodatlas.medicine.wisc.edu/download | Derived from USCB ACS 5-year estimates. |
| CDC Social  Vulnerability  Index (SVI) | 2018 | Flanagan et al. (2011) | https://www.atsdr.cdc.gov/placeandhealth/svi/index.html | Derived from USCB ACS data; updated with availability of census data. |
| Opportunity  Atlas (OA) | Pre 2015 | Chetty et al. (2020); https://opportunityinsights.org/wp-content/uploads/2018/10/Atlas\_methods.pdf | https://www.opportunityatlas.org/ | Created from USCB ACS, decennial, and federal income tax returns data; applies to children born between 1978 and 1983. Website mentions planned annual data refreshes |
| CDC  500 Cities  (500C) | 2019 | Zhang et al. 2015; https://www.cdc.gov/places/measure-definitions/health-outcomes/index.html | <https://chronicdata.cdc.gov/browse?category=500+Cities>; | Based on data from the USCB ACS, and the Behavioral Risk Factor Surveillance System, a phone survey program. Data not available for all census tracts because EnviroAtlas community boundaries include areas outside of larger cities. See <https://www.cdc.gov/places/about/500-cities-2016-2019/pdfs/500-cities-by-state.pdf>. Data updated regularly |
| CDCU.S. Small-areaLifeExpectancyEstimatesProject(USLEEP) | 2010-2015 | Arias et al. (2018) | https://www.cdc.gov/nchs/nvss/usaleep/usaleep.html#life-expectancy | Based on data from USCB ACS data and death data from the Nation Center for Health Statistics (NCHS) |
| USCB  American  Community  Survey (ACS) | HWB and covariates | 2015-2019 | https://www.census.gov/programs-surveys/acs/technical-documentation.html | https://www.census.gov/programs-surveys/acs/ | 5-year averages based on data from an annual survey |
| Walk Score  (Walk) | natural capital | 2020 | Walk Score (2021) | https://www.walkscore.com/professional/research.php | Census tract scale data available for a fee |

**References for Appendix A, Part 2**

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**Part 3. OpenStreetmap-derived metrics and supporting information**

Natural and built capital amenity metrics were derived from OpenStreetMap data by summing counts, polygon area, or line length of observations into amenity density (counts and length) or percent of the census tract (area). Table 3.1 shows the OSM amenities (or “values;” https://wiki.openstreetmap.org/wiki/Map\_features) that were summed for each of the five OSM metrics

Table 3.1. Metrics derived from OpenStreetMap data.

|  |  |  |
| --- | --- | --- |
| Metric (*label*) | Reported OSM amenities | Metric units |
| Stream channel density (*Streams\_d*). This metric was derived from the length of stream in the census tract divided by tract area. Rivers excluded. | Stream (A naturally forming waterway that is too narrow to be classed as a river). | km/km2 |
| Trail density (*Trails\_d).* This metric was derived from the length of path in the census trace divided by tract area. | Path | km/km2 |
| Green amenity area as a percent of census tract area (*Greenarea\_p*). This metric was derived by summing the polygon area of observations of amenities that are mostly natural. | Beach, forest, dune, wood, grassland, heath, meadow, nature reserve, Wetland, scrub | percent |
| Hybrid recreation amenities density (*Hybridrec\_d*). This metric was derived by summing the counts of polygons partially man made recreational or leisure amenities for which greenspace is likely to be a significant attribute. | Playground, picnic site, camp site, playground, recreation ground, dog park, pitch (sports field), allotments, flowerbed, garden, golf course, grass (lawn), reservoir, viewpoint (overlook), park, village green, disc golf course | number/km2 |
| Water access amenities density (*Wateraccess\_d*). This metric was derived by summing the counts of polygons of water access amenities. | Slipway (boat ramp), marina, beach, canoe area, fishing piers, dock, swimming area | number/km2 |

**Part 4. Metric screening results for 500 Cities human well-being metrics.**

Table 4.1. The metric *Poorhealth\_p* is the mean of *Poorsleep\_p,* *Smoking\_p*, *Noexercise\_p*, *Poorphysical\_p*, and *Obesity\_*p for each census tract (see Table 1). Vales are Spearman rank correlation coefficients (*r*s); n=126. Values >|0.9| shown in bold. All metrics are negative, meaning that a higher value indicates a higher percentage of residents reporting poorer health or unhealthy behaviors.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Metric | *Poorhealth\_p* | *Poormental\_p* | *Poorsleep\_p* | *Binge\_p* | *Smoking\_p* | *Noexercise\_p* | *Highbp\_p* | *Poorphysical\_p* |
| *Poormental\_p* | 0.86 |  |  |  |  |  |  |  |
| *Poorsleep\_p* | **0.95** | 0.84 |  |  |  |  |  |  |
| *Binge\_p* | -0.66 | -0.34 | -0.59 |  |  |  |  |  |
| *Smoking\_p* | **0.95** | **0.93** | 0.89 | -0.45 |  |  |  |  |
| *Noexercise\_p* | **0.97** | 0.82 | 0.89 | -0.73 | **0.92** |  |  |  |
| *Highbp\_p* | 0.76 | 0.43 | 0.70 | **-0.94** | 0.58 | 0.80 |  |  |
| *Poorphysical\_p* | **0.96** | 0.79 | 0.86 | -0.73 | **0.90** | **0.98** | 0.83 |  |
| *Obesity\_p* | **0.97** | 0.78 | **0.95** | -0.68 | 0.89 | **0.93** | 0.81 | **0.93** |

**Part 5. Census tract metric means by community area and covariate class.**

Table 5.1. Variation in metric values among communities included in the study. Some metrics were not available for Duluth-Superior.



Table 5.2. Variation in metric values among population density classes.



Table 5.3. Variation in metric values among nonwhite percentage classes.



Table 5.4. Variation in metric values among household income classes.



**Part 6. Results tables for correlations**

Table 6.1 Ambiguity ratios for HWB and natural capital metrics. Ambiguity ratio = 1 – (the number of correlations with metrics of the other type that were significant and in the right direction/ the number of correlations that were significant). The ratio ranges from 0 (all the significant correlations were in the expected direction) to 1 (none of the significant correlations were in the expected direction. Empty cells indicate there were no significant correlations so the ambiguity ration cannot be calculated. Values in parentheses for *Staying\_p* apply if this metric is considered a negative HWB indicator. Values in parentheses for *Childage\_r* and *Oldage\_r* apply if these metrics are considered a positive HWB indicators. Row mean is the mean of values across the six covariate classes. Population density and household income class boundaries given in Appendix A, Part 5.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Metric | All tracts | Population density high | | Population density medium | | Population density low | Household income high | Household income medium | Household income low | Row mean |
|  |
| HWB metrics | | | | | | | | | | |  |
| *Houseincome* | 0.00 | 0.00 | 0.00 | | 0.07 | | 0.00 | 0.00 | 0.00 | 0.01 |  |
| *SVIall* | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.20 | 0.00 | 0.00 | 0.03 |  |
| *Poverty\_p* | 0.08 | 0.00 | 0.00 | | 0.09 | |  |  | 0.20 | 0.07 |  |
| *Lifeexpect* | 0.00 | 0.63 | 0.00 | | 0.00 | | 0.13 | 0.00 | 0.00 | 0.13 |  |
| *Poorhealth\_p* | 0.27 | 0.33 | 0.00 | | 0.00 | | 0.43 | 0.33 | 0.29 | 0.23 |  |
| *Homevalue* | 0.20 | 0.25 | 0.00 | | 0.07 | | 0.30 | 0.71 | 0.18 | 0.25 |  |
| *Jail\_p* | 0.16 | 0.33 | 0.15 | | 0.08 | | 0.11 | 0.20 | 0.75 | 0.27 |  |
| *Success\_p* | 0.00 | 0.56 | 0.17 | | 0.06 | | 0.00 | 0.33 | 0.60 | 0.29 |  |
| *Owned\_p* | 0.29 | 0.50 | 0.14 | | 0.12 | | 0.29 | 0.25 | 0.50 | 0.30 |  |
| *ADInational* | 0.11 | 0.71 | 0.00 | | 0.06 | | 0.14 | 0.67 | 0.22 | 0.30 |  |
| *College\_p* | 0.23 | 0.33 | 0.20 | | 0.00 | | 0.40 | 0.62 | 0.30 | 0.31 |  |
| *Highbp\_p* | 0.60 | 0.40 | 0.00 | | 0.67 | | 0.50 | 0.57 | 0.00 | 0.36 |  |
| *Divorce\_p* | 0.25 | 0.50 | 0.33 | | 0.00 | |  | 0.57 | 0.50 | 0.38 |  |
| *Poormental\_p* | 0.33 | 0.67 | 0.00 | | 0.25 | | 0.60 | 0.33 | 0.43 | 0.38 |  |
| *Employment\_r* | 0.25 | 0.00 | 0.50 | | 0.13 | | 0.88 | 0.60 | 0.25 | 0.39 |  |
| *Binge\_p* | 1.00 | 0.71 |  | | 0.50 | | 0.33 | 0.50 |  | 0.51 |  |
| *Oldage\_r* | 0.76 (0.24) | 0.50 (0.50) | 1.00 (0) | | 0 (1.00) | | 0.70 (0.30) | 0.57 (0.43) | 0.50 (0.50) | 0.55 (0.46) |  |
| *Childage\_r* | 0.61 (0.39) | 0.50 (0.50) | 1.00 (0) | | 0.83 (0.17) | | 0.80 (0.20) | 0.56 (0.44) | 0.39 (0.63) | 0.68 (0.32) |  |
| *Staying\_p* | 0.75 (0.25) | 1.00 (0) | 1.00 (0) | | 1.00(0) | | 0.50 (0.50) | 0.43 (0.57) | 0.71 (0.29) | 0.77 (0.23) |  |
| Natural capital metrics | | | | | | | | | | |  |
| *Imperv\_pc* | 0.08 | 0.25 | 0.18 | | 0.08 | | 0.00 | 0.00 | 0.08 | 0.10 |  |
| *BFcount* | 0.13 | 0.25 | 0.00 | | 0.14 | | 0.25 | 0.00 | 0.17 | 0.14 |  |
| *SFcount* | 0.00 | 0.50 | 0.11 | | 0.09 | | 0.17 | 0.00 | 0.00 | 0.15 |  |
| *Hybridrec\_d* | 0.18 | 0.09 | 0.00 | | 0.14 | | 0.25 | 0.27 | 0.14 | 0.15 |  |
| *Beachshore\_p* | 0.20 |  | 0.00 | | 0.00 | | 0.33 | 0.50 | 0.00 | 0.17 |  |
| *Mintreeview\_p* | 0.40 | 0.50 | 0.00 | | 0.18 | | 0.33 | 0.00 | 0.00 | 0.17 |  |
| *Parkdist* | 0.20 | 0.60 | 0.00 | | 0.50 | | 0.11 | 0.13 | 0.00 | 0.22 |  |
| *PM10removed\_p* | 0.25 |  | 0.00 | | 0.17 | | 0.33 | 0.80 | 0.00 | 0.26 |  |
| *Trails\_d* | 0.00 | 0.20 | 1.00 | | 0.00 | | 0.50 | 0.00 | 0.00 | 0.28 |  |
| *Flood\_p* | 0.29 | 1.00 | 0.00 | | 0.67 | | 0.00 | 0.15 | 0.00 | 0.30 |  |
| *Artificialshore\_p* | 0.20 | 1.00 | 0.07 | | 0.00 | | 0.50 | 0.33 | 0.00 | 0.32 |  |
| *Naturalshore\_p* | 0.25 | 0.00 | 0.00 | | 0.00 | | 0.57 | 0.60 | 1.00 | 0.36 |  |
| *Streams\_d* | 0.43 | 0.00 | 0.00 | | 0.25 | | 1.00 | 0.71 | 0.25 | 0.37 |  |
| *Treecover\_p* | 0.27 | 0.67 | 0.20 | | 0.13 | | 0.50 | 0.80 | 0.00 | 0.38 |  |
| *PM2\_5removed\_p* | 0.25 | 1.00 | 0.00 | | 0.33 | | 0.00 | 0.75 | 0.40 | 0.41 |  |
| *Walkability* | 0.33 | 0.06 | 1.00 | | 1.00 | | 0.13 | 0.27 | 0.13 | 0.43 |  |
| *Imperv\_p* | 0.30 | 1.00 | 0.20 | | 0.09 | | 0.50 | 0.60 | 0.40 | 0.47 |  |
| *Park<500m\_p* | 0.29 | 1.00 | 0.00 | | 1.00 | | 0.17 | 0.17 | 0.67 | 0.50 |  |
| *Waterview\_p* | 0.00 | 1.00 | 0.00 | | 0.18 | | 0.75 | 0.86 | 0.50 | 0.55 |  |
| *Treecover\_pc* | 0.60 | 0.80 | 0.25 | | 0.10 | | 0.83 | 0.80 | 0.80 | 0.60 |  |
| *Wetland\_p* | 0.71 | 0.40 | 1.00 | | 0.00 | | 0.75 | 0.88 | 0.67 | 0.62 |  |
| *Greenarea\_p* | 0.00 | 0.50 |  | |  | | 1.00 | 0.00 | 1.00 | 0.63 |  |
| *Greenspace\_pc* | 0.75 | 0.88 |  | | 0.00 | | 0.83 | 0.82 | 0.82 | 0.67 |  |
| *Wateraccess\_d* | 0.25 |  | 1.00 | | 1.00 | | 0.14 | 0.25 | 1.00 | 0.68 |  |
| *Ripariantree\_p* | 0.40 | 1.00 |  | | 0.21 | | 0.50 | 0.83 | 1.00 | 0.71 |  |
| *Greenspace\_p* | 0.43 | 0.83 |  | | 0.14 | | 0.75 | 0.88 | 1.00 | 0.72 |  |

Table 6.2. Consistency of metrics defined as the percentage of correlations with metrics of the opposite type (HWB or natural capital) that were significantly correlated in the expected direction (see Table 1 of the main text). For example, *Jail\_p* was significantly correlated in the expected direction with 16 of 26 (62%) natural capital metrics across census tracts. Values in parentheses for S*taying\_p* apply if this metrics is considered a negative HWB indicator. Values in parentheses for C*hildage\_r* and *Oldage\_r* apply if these metrics are considered positive HWB indicators. Row mean is the mean of values across the six covariate classes. Population density and household income class boundaries given in Appendix A, Part 5.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Metric | All tracts | Population density high | | Population density medium | Population density low | Household income high | Household income medium | Household income low | Row mean |
|  |
| HWB metrics | | | | | | | | | |  |
| *Owned\_p* | 58 | 4 | 46 | | 58 | 58 | 58 | 19 | 41 |  |
| *College\_p* | 38 | 15 | 15 | | 46 | 35 | 31 | 27 | 28 |  |
| *Homevalue* | 31 | 12 | 4 | | 54 | 27 | 19 | 35 | 25 |  |
| *ADInational* | 31 | 8 | 12 | | 58 | 23 | 19 | 27 | 25 |  |
| *Jail\_p* | 62 | 8 | 42 | | 46 | 31 | 15 | 4 | 24 |  |
| *Success\_p* | 35 | 15 | 19 | | 58 | 31 | 8 | 8 | 23 |  |
| *Houseincome* | 38 | 8 | 35 | | 54 | 19 | 4 | 15 | 23 |  |
| *SVIall* | 35 | 15 | 27 | | 35 | 15 | 12 | 15 | 20 |  |
| *Lifeexpect* | 35 | 12 | 23 | | 38 | 27 | 8 | 4 | 19 |  |
| *Poorhealth\_p* | 31 | 8 | 12 | | 15 | 15 | 31 | 19 | 17 |  |
| *Poverty\_p* | 46 | 8 | 35 | | 38 | 0 | 0 | 15 | 16 |  |
| *Poormental\_p* | 38 | 15 | 15 | | 12 | 15 | 23 | 15 | 16 |  |
| *Employment\_r* | 23 | 4 | 8 | | 50 | 4 | 8 | 12 | 14 |  |
| *Divorce\_p* | 23 | 15 | 8 | | 23 | 0 | 23 | 15 | 14 |  |
| *Childage\_r* | 27(42) | 8(8) | 0(15) | | 4 (19) | 12 (46) | 27 (35) | 19 (12) | 12 (23) |  |
| *Oldage\_r* | 15 (50) | 23 (23) | 0 (12) | | 0 (31) | 12 (26) | 12 (15) | 4 (40 | 9 (22) |  |
| *Highbp\_p* | 8 | 12 | 4 | | 4 | 4 | 12 | 4 | 7 |  |
| *Binge\_p* | 0 | 8 | 0 | | 12 | 8 | 8 | 0 | 6 |  |
| *Staying\_p* | 8 (23) | 0(4) | 0(4) | | 0 (31) | 4(4) | 15(8) | 8(19) | 5 (16) |  |
| Natural capital metrics | | | | | | | | | |  |
| *BFcount* | 63 | 16 | 47 | | 63 | 32 | 32 | 63 | 42 |  |
| *Hybridrec\_d* | 42 | 84 | 0 | | 0 | 37 | 42 | 37 | 33 |  |
| *SFcount* | 47 | 53 | 5 | | 32 | 32 | 42 | 32 | 33 |  |
| *Imperv\_pc* | 74 | 16 | 37 | | 63 | 16 | 32 | 26 | 32 |  |
| *PM10removed\_p* | 58 | 5 | 42 | | 53 | 26 | 5 | 32 | 27 |  |
| *Artificialshore\_p* | 37 | 0 | 42 | | 53 | 16 | 21 | 16 | 25 |  |
| *Walkability* | 42 | 0 | 68 | | 47 | 5 | 11 | 16 | 25 |  |
| *Naturalshore\_p* | 16 | 5 | 5 | | 47 | 42 | 16 | 16 | 22 |  |
| *Treecover\_p* | 42 | 5 | 21 | | 68 | 21 | 5 | 5 | 21 |  |
| *Ripariantree\_p* | 26 | 0 | 26 | | 5 | 11 | 58 | 21 | 20 |  |
| *Wateraccess\_d* | 21 | 11 | 5 | | 5 | 42 | 37 | 16 | 19 |  |
| *Imperv\_p* | 47 | 0 | 11 | | 53 | 32 | 5 | 5 | 18 |  |
| *Flood\_p* | 21 | 5 | 16 | | 47 | 5 | 11 | 11 | 16 |  |
| *Parkdist* | 21 | 0 | 11 | | 37 | 21 | 16 | 5 | 15 |  |
| *Park500m\_p* | 32 | 0 | 0 | | 58 | 16 | 5 | 0 | 13 |  |
| *Beachshore\_p* | 21 | 5 | 0 | | 63 | 5 | 5 | 0 | 13 |  |
| *Greenspace\_p* | 16 | 0 | 16 | | 47 | 5 | 5 | 5 | 13 |  |
| *Treecover\_pc* | 32 | 5 | 37 | | 5 | 16 | 11 | 0 | 12 |  |
| *Mintreeview\_p* | 11 | 21 | 0 | | 32 | 5 | 11 | 5 | 12 |  |
| *Streams\_d* | 26 | 0 | 5 | | 0 | 26 | 26 | 5 | 10 |  |
| *Greenspace\_pc* | 16 | 0 | 16 | | 11 | 11 | 5 | 16 | 10 |  |
| *PM2.5removed\_p* | 21 | 5 | 5 | | 16 | 0 | 11 | 16 | 9 |  |
| *Waterview\_p* | 32 | 0 | 0 | | 0 | 32 | 16 | 0 | 8 |  |
| *Trails\_d* | 16 | 5 | 0 | | 16 | 5 | 11 | 11 | 8 |  |
| *Wetland\_p* | 11 | 16 | 0 | | 5 | 5 | 5 | 5 | 6 |  |
| *Greenarea\_p* | 5 | 11 | 0 | | 0 | 0 | 11 | 0 | 4 |  |

**Part 7. Plots of significant correlations with *r*s >0.50**

Plots of rank correlations between natural capital and HWB metrics grouped by covariate class. Lines fitted using locally weighted scatterplot smoothing (LOWESS) for a first-degree polynomial with a sampling proportion of 0.5. Plots without lines could not be fit using this method. See Table 1 for metric units.



























**Part 8. Regression results**

Table 8.1. Regression parameters and statistics for multiple linear regression models predicting HWB metrics from natural capital metrics and covariates (household income and populations density; *Houseincome* is both a dependent variable and a covariate). Models were selected using the Akaike information criterion from an initial model including all the natural capital predictors. Models are based on transformed metrics (see methods). Standardized β coefficients are unitless and allow the relative influence of predictors on the model to be compared. Pr> |*t*| refers to the test of the hypothesis that the parameter estimate = 0. Results of interaction models shown in Fig. 6 in main text.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dependent variable (HWB metric) | Predictors and covariates | Error df | Model F | Pr>*F* | RMSE | *R*2 | Parameter estimates | Lower 95% confidence limit | Upper 95% confidence limit | *t* | Pr>|*t*| | Standardized β coefficient (effect size) |
| *Poorhealth\_p* | Intercept | 94 | 113.15 | <0.0001 | 0.02928 | 0.88 | 1.82 |  |  | 25.39 | <0.0001 |  |
| *Houseincome* |  |  |  |  |  | -0.24 | -0.27 | -0.21 | -17.67 | <.0001 | -0.70 |
| *Walkability* |  |  |  |  |  | -0.11 | -0.14 | -0.09 | -8.32 | <.0001 | -0.37 |
| *Imperv\_pc* |  |  |  |  |  | 0.04 | 0.02 | 0.06 | 4.87 | <.0001 | 0.29 |
| *Parkdist* |  |  |  |  |  | -0.05 | -0.08 | -0.02 | -3.62 | 0.0005 | -0.21 |
| *Mintreeview\_p* |  |  |  |  |  | 0.11 | 0.02 | 0.19 | 2.52 | 0.0133 | 0.11 |
| *Flood\_p* |  |  |  |  |  | -0.04 | -0.11 | 0.03 | -1.25 | 0.2147 | -0.05 |
| *Poorhealth\_p*  (interaction model) | Intercept | 113 | 119.33 | <0.0001 | 0.03842 | 0.76 | 2.55 | 1.90 | 3.20 | 7.78 | <0.0001 |  |
| *Houseincome* |  |  |  |  |  | -0.41 | -0.55 | -0.28 | -6.03 | <0.0001 | -1.26 |
| *Walkability* |  |  |  |  |  | -0.86 | -1.49 | -0.23 | -2.69 | 0.0083 | -3.28 |
| *Houseincome \* Walkability* |  |  |  |  |  | 0.16 | 0.03 | 0.30 | 2.45 | 0.0157 | 3.13 |
| *College\_p* | Intercept | 146 | 73.78 | <0.0001 | 0.1207 | 0.85 | -2.61 |  |  | -7.14 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | 0.78 | 0.69 | 0.87 | 16.62 | <.0001 | 0.65 |
| *Walkability* |  |  |  |  |  | 0.38 | 0.25 | 0.52 | 5.62 | <.0001 | 0.43 |
| *Treecover\_p* |  |  |  |  |  | 0.65 | 0.34 | 0.96 | 4.12 | <.0001 | 0.31 |
| *Popdensity* |  |  |  |  |  | -0.13 | -0.25 | -0.02 | -2.27 | 0.0248 | -0.27 |
| *Treecover\_pc* |  |  |  |  |  | -0.09 | -0.21 | 0.02 | -1.58 | 0.1171 | -0.25 |
| *Imperv\_pc* |  |  |  |  |  | -0.08 | -0.17 | 0.01 | -1.80 | 0.0746 | -0.14 |
| *BFcount* |  |  |  |  |  | -0.07 | -0.11 | -0.03 | -3.29 | 0.0012 | -0.13 |
| *Hybridrec\_d* |  |  |  |  |  | 0.05 | 0.01 | 0.09 | 2.61 | 0.0100 | 0.12 |
| *Ripariantree\_p* |  |  |  |  |  | -0.17 | -0.35 | 0.01 | -1.85 | 0.066 | -0.11 |
| *Flood\_p* |  |  |  |  |  | -0.33 | -0.60 | -0.05 | -2.34 | 0.0208 | -0.09 |
| *Artificialshore\_p* |  |  |  |  |  | -0.04 | -0.10 | 0.01 | -1.59 | 0.1143 | -0.07 |
| *Homevalue* | Intercept | 145 | 83.39 | <0.0001 | 0.13628 | 0.82 | 0.50 |  |  | 1.82 | 0.0708 |  |
| *Houseincome* |  |  |  |  |  | 0.98 | 0.87 | 1.09 | 17.96 | <.0001 | 0.75 |
| *PM10removed\_p* |  |  |  |  |  | 5.85 | 2.18 | 9.51 | 3.15 | 0.0020 | 0.33 |
| *Treecover\_p* |  |  |  |  |  | -0.41 | -0.86 | 0.05 | -1.76 | 0.0810 | -0.19 |
| *Walkability* |  |  |  |  |  | 0.17 | 0.06 | 0.28 | 3.02 | 0.0030 | 0.18 |
| *Imperv\_pc* |  |  |  |  |  | -0.08 | -0.14 | -0.02 | -2.67 | 0.0084 | -0.14 |
| *Hybridrec\_d* |  |  |  |  |  | 0.05 | 0.00 | 0.09 | 2.10 | 0.0371 | 0.10 |
| *Artificialshore\_p* |  |  |  |  |  | -0.05 | -0.11 | 0.01 | -1.63 | 0.1057 | -0.07 |
| *Treecover\_pc* |  |  |  |  |  | 0.28 | -0.06 | 0.62 | 1.63 | 0.1050 | 0.07 |
| *ADInational* | Intercept | 184 | 82.6 | 0.0001 | 0.15296 | 0.78 | 5.49 |  |  | 21.03 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | -1.00 | -1.11 | -0.90 | -18.99 | <.0001 | -0.77 |
| *Imperv\_pc* |  |  |  |  |  | 0.31 | 0.17 | 0.45 | 4.39 | <.0001 | 0.49 |
| *PM10removed\_p* |  |  |  |  |  | -7.61 | -11.36 | -3.86 | -4.01 | <.0001 | -0.40 |
| *Treecover\_p* |  |  |  |  |  | 0.90 | 0.38 | 1.42 | 3.43 | 0.0007 | 0.37 |
| *Imperv\_p* |  |  |  |  |  | -0.56 | -0.85 | -0.27 | -3.84 | 0.0002 | -0.30 |
| *Treecover\_pc* |  |  |  |  |  | -0.12 | -0.24 | 0.00 | -2.01 | 0.0461 | -0.28 |
| *Treecover\_pc* |  |  |  |  |  | -0.62 | -1.06 | -0.19 | -2.83 | 0.0052 | -0.12 |
| *Hybridrec\_d* |  |  |  |  |  | -0.02 | -0.06 | 0.01 | -1.21 | 0.2263 | -0.05 |
| *Owned\_p* | Intercept | 176 | 69.32 | <0.0001 | 0.14905 | 0.78 | -2.58 |  |  | -10.11 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | 0.79 | 0.69 | 0.89 | 15.05 | <.0001 | 0.63 |
| *Walkability* |  |  |  |  |  | -0.32 | -0.49 | -0.16 | -3.97 | 0.0001 | -0.35 |
| *Treecover\_p* |  |  |  |  |  | 0.75 | 0.21 | 1.30 | 2.74 | 0.0068 | 0.33 |
| *PM10removed\_p* |  |  |  |  |  | -5.42 | -9.09 | -1.76 | -2.92 | 0.0040 | -0.30 |
| *Ripariantree\_p* |  |  |  |  |  | -0.26 | -0.47 | -0.06 | -2.55 | 0.0116 | -0.16 |
| *Treecover\_pc* |  |  |  |  |  | -0.57 | -0.93 | -0.20 | -3.07 | 0.0025 | -0.14 |
| *Imperv\_p* |  |  |  |  |  | -0.20 | -0.40 | 0.00 | -2.02 | 0.0452 | -0.12 |
| *Treecover\_pc* |  |  |  |  |  | 0.05 | -0.02 | 0.11 | 1.44 | 0.1508 | 0.11 |
| *Hybridrec\_d* |  |  |  |  |  | -0.03 | -0.07 | 0.01 | -1.52 | 0.1294 | -0.07 |
| *Mental\_p* | Intercept | 101 | 57.74 | <0.0001 | 0.02879 | 0.75 | 1.14 |  |  | 18.35 | <0.0001 |  |
| *Houseincome* |  |  |  |  |  | -0.15 | -0.18 | -0.13 | -11.45 | <.0001 | -0.64 |
| *Walkability* |  |  |  |  |  | -0.08 | -0.11 | -0.05 | -5.68 | <.0001 | -0.36 |
| *Treecover\_pc* |  |  |  |  |  | 0.12 | 0.04 | 0.20 | 2.87 | 0.0050 | 0.17 |
| *BFcount* |  |  |  |  |  | 0.01 | 0.00 | 0.02 | 2.22 | 0.0288 | 0.12 |
| *Imperv\_p* |  |  |  |  |  | 0.04 | -0.01 | 0.08 | 1.73 | 0.0866 | 0.12 |
| *Highbp\_p* | Intercept | 71 | 24.9 | <0.0001 | 0.06536 | 0.71 | 2.36 |  |  | 14.08 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | -0.31 | -0.38 | -0.24 | -8.84 | <.0001 | -0.63 |
| *PM10removed\_p* |  |  |  |  |  | 4.92 | 1.36 | 8.48 | 2.76 | 0.0075 | 0.58 |
| *Treecover\_p* |  |  |  |  |  | -0.64 | -1.13 | -0.14 | -2.57 | 0.0123 | -0.57 |
| *Walkability* |  |  |  |  |  | -0.17 | -0.25 | -0.09 | -4.13 | <.0001 | -0.40 |
| *Parkdist* |  |  |  |  |  | -0.11 | -0.18 | -0.04 | -3.17 | 0.0023 | -0.32 |
| *Imperv\_pc* |  |  |  |  |  | 0.04 | 0.00 | 0.09 | 2.02 | 0.0469 | 0.22 |
| *Artificialshore\_p* |  |  |  |  |  | 0.03 | -0.01 | 0.08 | 1.36 | 0.1796 | 0.11 |
| *Success\_p* | Intercept | 178 | 55.25 | <0.0001 | 0.08054 | 0.71 | -1.39 |  |  | -7.06 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | 0.46 | 0.40 | 0.51 | 15.79 | <.0001 | 0.74 |
| *Treecover\_pc* |  |  |  |  |  | -0.09 | -0.15 | -0.03 | -2.82 | 0.0053 | -0.42 |
| *Popdensity* |  |  |  |  |  | -0.06 | -0.13 | 0.00 | -1.92 | 0.0567 | -0.22 |
| *PM10removed\_p* |  |  |  |  |  | 1.71 | 0.49 | 2.93 | 2.76 | 0.0064 | 0.19 |
| *Imperv\_p* |  |  |  |  |  | -0.13 | -0.23 | -0.03 | -2.51 | 0.0128 | -0.15 |
| *Ripariantree\_p* |  |  |  |  |  | 0.08 | -0.03 | 0.19 | 1.45 | 0.1496 | 0.09 |
| *Walkability* |  |  |  |  |  | 0.02 | -0.06 | 0.11 | 0.54 | 0.5885 | 0.05 |
| *BFcount* |  |  |  |  |  | -0.01 | -0.03 | 0.01 | -0.81 | 0.4186 | -0.04 |
| *Jail\_p* | Intercept | 148 | 37.13 | <0.0001 | 0.04610 | 0.67 | 1.07 |  |  | 12.71 | <0.001 |  |
| *Treecover\_p* |  |  |  |  |  | -0.46 | -0.63 | -0.29 | -5.33 | <.0001 | -0.84 |
| *PM10removed\_p* |  |  |  |  |  | 3.20 | 2.02 | 4.38 | 5.35 | <.0001 | 0.74 |
| *Houseincome* |  |  |  |  |  | -0.22 | -0.26 | -0.19 | -12.92 | <.0001 | -0.71 |
| *Imperv\_pc* |  |  |  |  |  | 0.04 | 0.02 | 0.06 | 4.13 | <.0001 | 0.25 |
| *Artificialshore\_p* |  |  |  |  |  | 0.03 | 0.01 | 0.05 | 3.45 | 0.0007 | 0.20 |
| *Flood\_p* |  |  |  |  |  | -0.16 | -0.26 | -0.05 | -2.94 | 0.0038 | -0.17 |
| *Ripariantree\_p* |  |  |  |  |  | 0.06 | 0.00 | 0.13 | 1.86 | 0.0644 | 0.16 |
| *Hybridrec\_d* |  |  |  |  |  | 0.02 | 0.00 | 0.03 | 2.35 | 0.0199 | 0.13 |
| *Poverty\_p* | Intercept | 175 | 34.06 | <0.001 | 0.1212 | 0.66 | 3.65 |  |  | 14.32 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | -0.62 | -0.71 | -0.54 | -14.61 | <.0001 | -0.77 |
| *Treecover\_p* |  |  |  |  |  | -0.48 | -0.93 | -0.02 | -2.07 | 0.0395 | -0.32 |
| *PM10removed\_p* |  |  |  |  |  | 3.71 | 0.68 | 6.74 | 2.42 | 0.0167 | 0.32 |
| *Imperv\_p* |  |  |  |  |  | 0.30 | 0.12 | 0.48 | 3.23 | 0.0015 | 0.27 |
| *Parkdist* |  |  |  |  |  | -0.11 | -0.21 | -0.01 | -2.21 | 0.0283 | -0.18 |
| *Popdensity* |  |  |  |  |  | -0.05 | -0.11 | 0.00 | -1.90 | 0.0591 | -0.14 |
| *Hybridrec\_d* |  |  |  |  |  | -0.04 | -0.07 | 0.00 | -2.14 | 0.0336 | -0.13 |
| *Ripariantree\_p* |  |  |  |  |  | 0.12 | -0.05 | 0.28 | 1.37 | 0.1726 | 0.11 |
| *Treecover\_pc* |  |  |  |  |  | -0.13 | -0.43 | 0.17 | -0.87 | 0.3872 | -0.05 |
| *Walkability* |  |  |  |  |  | -0.02 | -0.15 | 0.12 | -0.23 | 0.8217 | -0.02 |
| *Binge\_p* | Intercept | 100 | 31.5 | <0.0001 | 0.04671 | 0.63 | -0.68 |  |  | -4.25 | <.0001 |  |
| *Treecover\_p* |  |  |  |  |  | 0.99 | 0.67 | 1.30 | 6.26 | <.0001 | 1.32 |
| *PM10removed\_p* |  |  |  |  |  | -7.29 | -9.65 | -4.93 | -6.13 | <.0001 | -1.26 |
| *Houseincome* |  |  |  |  |  | 0.20 | 0.16 | 0.25 | 9.78 | <.0001 | 0.63 |
| *Popdensity* |  |  |  |  |  | 0.03 | -0.02 | 0.08 | 1.33 | 0.1872 | 0.25 |
| *Imperv\_p* |  |  |  |  |  | 0.07 | -0.04 | 0.17 | 1.28 | 0.2038 | 0.16 |
| *Parkdist* |  |  |  |  |  | 0.02 | -0.02 | 0.07 | 1.02 | 0.3124 | 0.11 |
| *Imperv\_pc* |  |  |  |  |  | -0.01 | -0.06 | 0.04 | -0.35 | 0.7299 | -0.07 |
| *Flood\_p* |  |  |  |  |  | 0.02 | -0.09 | 0.13 | 0.35 | 0.7299 | 0.03 |
| *Lifeexpect* | Intercept | 213 | 106.09 | P<0001 | 0.01805 | 0.50 | 1.59 |  |  | 62.98 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | 0.07 | 0.06 | 0.08 | 13.36 | <.0001 | 0.66 |
| *Imperv\_pc* |  |  |  |  |  | -0.01 | -0.01 | 0.00 | -3.75 | 0.0002 | -0.18 |
| *SVIall* | Intercept | 140 | 17.12 | <0.0001 | 0.02022 | 0.46 | 0.33 |  |  | 7.35 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | -0.06 | -0.07 | -0.04 | -7.73 | <.0001 | -0.54 |
| *Treecover\_p* |  |  |  |  |  | -0.09 | -0.15 | -0.02 | -2.49 | 0.0141 | -0.44 |
| *PM10removed\_p* |  |  |  |  |  | 0.48 | -0.05 | 1.01 | 1.80 | 0.0740 | 0.31 |
| *Artificialshore\_p* |  |  |  |  |  | 0.01 | 0.00 | 0.02 | 2.19 | 0.0300 | 0.16 |
| *Popdensity* |  |  |  |  |  | -0.01 | -0.01 | 0.00 | -1.92 | 0.0572 | -0.16 |
| *Flood\_p* |  |  |  |  |  | 0.04 | 0.00 | 0.09 | 1.86 | 0.0651 | 0.14 |
| *Parkdist* |  |  |  |  |  | 0.01 | 0.00 | 0.02 | 1.38 | 0.1692 | 0.13 |
| *Childage\_r* | Intercept | 188 | 15.24 | <0.0001 | 0.16502 | 0.36 | 0.56 |  |  | 4.44 | <.0001 |  |
| *Imperv\_pc* |  |  |  |  |  | 0.19 | 0.12 | 0.26 | 5.17 | <.0001 | 0.47 |
| *Imperv\_p* |  |  |  |  |  | -0.41 | -0.58 | -0.24 | -4.85 | <.0001 | -0.36 |
| *Treecover\_pc* |  |  |  |  |  | -0.64 | -1.01 | -0.26 | -3.36 | 0.0009 | -0.23 |
| *Hybridrec\_d* |  |  |  |  |  | -0.05 | -0.09 | -0.01 | -2.33 | 0.0210 | -0.17 |
| *Parkdist* |  |  |  |  |  | -0.04 | -0.17 | 0.08 | -0.71 | 0.4765 | -0.07 |
| *Flood\_p* |  |  |  |  |  | -0.15 | -0.46 | 0.16 | -0.95 | 0.3446 | -0.06 |
| *Ripariantree\_p* |  |  |  |  |  | 0.04 | -0.12 | 0.20 | 0.51 | 0.6117 | 0.04 |
| *Employment\_r* | Intercept | 190 | 14.51 | <0.0001 | 0.10366 | 0.35 | -0.40 |  |  | -1.88 | 0.0615 |  |
| *PM10removed\_p* |  |  |  |  |  | -7.11 | -9.60 | -4.62 | -5.63 | <.0001 | -0.95 |
| *Treecover\_p* |  |  |  |  |  | 0.74 | 0.41 | 1.06 | 4.49 | <.0001 | 0.78 |
| *Houseincome* |  |  |  |  |  | 0.25 | 0.18 | 0.32 | 7.23 | <.0001 | 0.49 |
| *Popdensity* |  |  |  |  |  | 0.06 | 0.02 | 0.10 | 2.80 | 0.0057 | 0.25 |
| *Treecover\_pc* |  |  |  |  |  | -0.29 | -0.54 | -0.04 | -2.26 | 0.0248 | -0.17 |
| *Imperv\_p* |  |  |  |  |  | -0.11 | -0.22 | 0.00 | -1.95 | 0.0532 | -0.16 |
| *Parkdist* |  |  |  |  |  | 0.06 | -0.02 | 0.14 | 1.55 | 0.1236 | 0.15 |
| *Houseincome* | Intercept | 177 | 10.38 | <0.0001 | 0.21016 | 0.32 | 4.54 |  |  | 36.34 | <.0001 |  |
| *PM10removed\_p* |  |  |  |  |  | 6.86 | 4.27 | 9.45 | 5.22 | <.0001 | 0.48 |
| *Imperv\_p* |  |  |  |  |  | -0.62 | -0.87 | -0.37 | -4.89 | <.0001 | -0.45 |
| *Walkability* |  |  |  |  |  | 0.20 | -0.02 | 0.42 | 1.78 | 0.0769 | 0.26 |
| *Treecover\_pc* |  |  |  |  |  | 0.74 | 0.25 | 1.24 | 2.97 | 0.0034 | 0.22 |
| *Flood\_p* |  |  |  |  |  | -0.40 | -0.79 | -0.01 | -2.01 | 0.0457 | -0.14 |
| *Hybridrec\_d* |  |  |  |  |  | 0.05 | -0.01 | 0.10 | 1.61 | 0.1090 | 0.13 |
| *BFcount* |  |  |  |  |  | -0.05 | -0.10 | 0.01 | -1.63 | 0.1052 | -0.12 |
| *Divorce\_p* | Intercept | 191 | 12.98 | <0.0001 | 0.06314 | 0.29 | 1.04 |  |  | 9.67 | <.0001 |  |
| *Treecover\_p* |  |  |  |  |  | 0.30 | 0.10 | 0.49 | 3.03 | 0.0028 | 0.54 |
| *PM10removed\_p* |  |  |  |  |  | -2.17 | -3.66 | -0.68 | -2.88 | 0.0045 | -0.50 |
| *Houseincome* |  |  |  |  |  | -0.14 | -0.18 | -0.10 | -6.89 | <.0001 | -0.48 |
| *Imperv\_p* |  |  |  |  |  | -0.10 | -0.15 | -0.04 | -3.62 | 0.0004 | -0.24 |
| *Imperv\_pc* |  |  |  |  |  | 0.02 | 0.00 | 0.05 | 1.63 | 0.1055 | 0.15 |
| *Parkdist* |  |  |  |  |  | -0.02 | -0.06 | 0.03 | -0.73 | 0.4636 | -0.07 |
| *Oldage\_r* | Intercept | 150 | 6.31 | <0.0001 | 0.16663 | 0.23 | 0.37 |  |  | 2.97 | 0.0035 |  |
| *Treecover\_p* |  |  |  |  |  | 0.44 | 0.09 | 0.78 | 2.51 | 0.0130 | 0.34 |
| *Imperv\_p* |  |  |  |  |  | -0.37 | -0.57 | -0.16 | -3.54 | 0.0005 | -0.31 |
| *Ripariantree\_p* |  |  |  |  |  | -0.22 | -0.47 | 0.04 | -1.69 | 0.094 | -0.23 |
| *Treecover\_pc* |  |  |  |  |  | -0.48 | -0.90 | -0.06 | -2.24 | 0.0267 | -0.19 |
| *Parkdist* |  |  |  |  |  | 0.10 | -0.01 | 0.21 | 1.79 | 0.0759 | 0.18 |
| *Artificialshore\_p* |  |  |  |  |  | 0.05 | -0.02 | 0.12 | 1.39 | 0.1661 | 0.13 |
| *BFcount* |  |  |  |  |  | -0.04 | -0.09 | 0.01 | -1.64 | 0.104 | -0.12 |
| *Staying\_p* | *Intercept* | 192 | 13.32 | <0.0001 | 0.05861 | 0.22 | 0.79 |  |  | 8.47 | <.0001 |  |
| *Houseincome* |  |  |  |  |  | -0.08 | -0.12 | -0.05 | -4.54 | <.0001 | -0.32 |
| *Imperv\_pc* |  |  |  |  |  | 0.04 | 0.02 | 0.06 | 3.88 | 0.0001 | 0.28 |
| *Imperv\_p* |  |  |  |  |  | -0.09 | -0.14 | -0.04 | -3.41 | 0.0008 | -0.23 |
| *Ripariantree\_p* |  |  |  |  |  | -0.08 | -0.13 | -0.03 | -3.06 | 0.0025 | -0.22 |